Aim: Implement a program on method and constructor overloading.

Objective: To use concept of method overloading in a java program to create a class with same function name with different number of parameters.

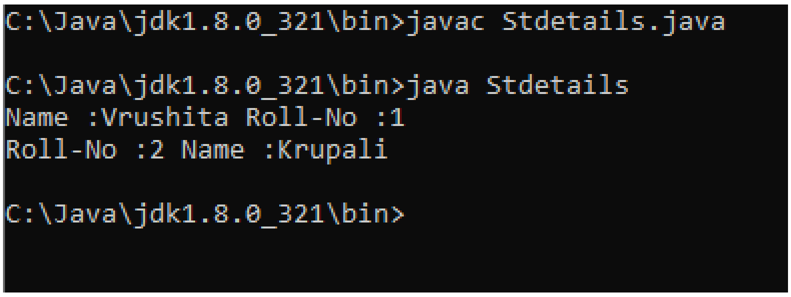
Theory:

Method Overloading is a feature that allows a class to have more than one method having the same name, if their argument lists are different. It is similar to constructor overloading in Java, that allows a class to have more than one constructor having different argument lists.

Example: This example to show how method overloading is done by having different number of parameters for the same method name.

```
import java.io.*;
class Student {
public void StudentId(String name, int roll_no){
System.out.println("Name :" + name + " "
+ "Roll-No :" + roll_no);
}
public void StudentId(int roll_no, String name)
{
// Again printing name and id of person
System.out.println("Roll-No :" + roll_no + " "
+ "Name :" + name);
}
}
class Stdetails {
public static void main(String[] args)
{
Student obj = new Student();
obj.StudentId("Vrushita", 1);
obj.StudentId(2, "Krupali");
}
}
```

Output:



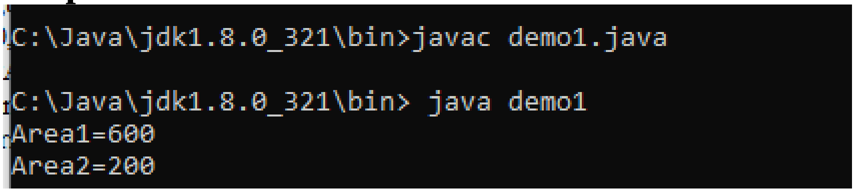
```
C:\Java\jdk1.8.0_321\bin>javac Stdetails.java

C:\Java\jdk1.8.0_321\bin>java Stdetails
Name :Vrushita Roll-No :1
Roll-No :2 Name :Krupali

C:\Java\jdk1.8.0_321\bin>
```

Constructor Overloading:

Code:

```
class Rectangle
{
    int length, width;
    void getData(int x, int y)
    {
        length=x;
        width=y;
    }
    int rectArea()
    {
        int area=length*width;
        return area;
    }    }
class demo1
{
   public static void main(String args[])
    {
        int area1,area2;
        Rectangle rect1=new Rectangle();
        Rectangle rect2=new Rectangle();
        rect1.length=20;
        rect1.width=30;
        area1=rect1.length*rect1.width;
        rect2.getData(20,10);
        area2=rect2.rectArea();
        System.out.println("Area1="+area1);
             System.out.println("Area2="+area2);
    }
}
```

Output:



```
C:\Java\jdk1.8.0_321\bin>javac demo1.java

C:\Java\jdk1.8.0_321\bin> java demo1
Area1=600
Area2=200
```

Conclusion:

Overloading simplifies method naming conventions by using the same name for related methods. This enhances code readability as developers can easily understand the purpose of these methods. method overloading is a valuable programming technique that enhances code readability, maintainability, and flexibility by allowing multiple methods with the same name to exist in a class, differing only in their parameter lists. It simplifies code development, improves code reuse, and contributes to a more expressive and user-friendly programming experience.